Guidance for Industry

Recommendations for Collecting Red Blood Cells by Automated Apheresis Methods

DRAFT GUIDANCE

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GUIDANCE FOR INDUSTRY[1]: Recommendations for Collecting Red Blood Cells by Automated Apheresis Methods

I. INTRODUCTION

This guidance document provides the recommendations of the Food and Drug Administration (FDA) for the use of FDA cleared automated blood cell separators in blood establishments for collecting both single and double units of red blood cells.

II. BACKGROUND

Recently the Food and Drug Administration (FDA) cleared a device, which allows for the safe and effective collection of Red Blood Cells using automated methods. Current acceptable protocols include the collection of one unit of Red Blood Cells plus up to two (2) units of plasma, or the collection of two (2) units of Red Blood Cells with return of plasma to the donor.

This guidance document describes the recommended donor suitability criteria and other criteria that should be addressed in license applications for such collections using automated methods. The donor suitability criteria described in this guidance document is consistent with that stated in the device manufacturer's directions for the cleared device**.** As with all devices, the manufacturer's directions, including any revisions to the manufacturer's directions**,** should be followed and incorporated into Standard Operating Procedures (SOPs).

Blood establishments that intend to use FDA cleared devices to manufacture one (1) unit of Red Blood Cells plus plasma or two (2) units of Red Blood Cells, using automated methods, should revise their SOPs and records to include such methods. The entries should include all the donor selection criteria, record keeping, manufacturing procedures, product tracking, lot numbers of all disposables and fluids (anticoagulants, saline and additive solutions), and quality control acceptance criteria and test results.

III. SPECIFIC RECOMMENDATIONS FOR THE USE OF FDA CLEARED AUTOMATED BLOOD CELL SEPARATORS FOR COLLECTING RED BLOOD CELLS

A. Donor Suitability Criteria for Allogeneic Red Blood Cell Donation

[1]This guidance document represents FDA's current thinking on recommendations for collecting red blood cells by automated apheresis methods. It does not create or confer any rights for or on any person and does not operate to bind FDA or the public. An alternative approach may be used if such approach satisfies the requirements of the applicable statute, regulations, or both.

1. Donors should meet all FDA criteria for standard allogeneic red blood cell donation [21 CFR 640.12]. Allogeneic donors from whom one (1) unit of Red Blood Cells plus plasma is collected are not eligible for whole blood donation or single unit red blood cell apheresis procedure until eight (8) weeks after the single red blood cell plus plasma donation.

2. Allogeneic donors from whom two (2) units of Red Blood Cells will be collected should meet any additional donor eligibility criteria as described by the device manufacturer in the device operator's manual. These additional criteria should include, but not be limited to the following:

   a. Donation intervals - There should be at least sixteen (16) weeks between each two (2) unit red blood cell donation. Donors should not be eligible for whole blood donation or any other apheresis collection procedure until sixteen (16) weeks after a two (2) unit red blood cell donation.

   b. Pre-Donation Hemoglobin should be 13.3 gm/dL or higher or hematocrit should be 40% or higher. (Note: While it is not specified in the manufacturer's directions, FDA recommends that a quantitative method be used for determining the pre-donation hemoglobin or hematocrit of donors from whom two (2) units of Red Blood Cells are being collected, as this method provides a more accurate determination.)

   c. Donor Weight – Males: 130 pounds or greater; Females: 150 pounds or greater. Donors should be weighed prior to each donation. Donors who are not weighed should not undergo the collection of two (2) units of red blood cells by automated apheresis.

   d. Donor Height – Males: 5'1" or taller; Females: 5'5" or taller.

B. Donor Suitability Criteria for Autologous Red Blood Cell Donation

1. Donors should meet all FDA criteria for autologous red blood cell donation. (FDA Memoranda: March 15, 1989: Guidance for Autologous Blood and Blood Components, and February 12, 1990: Autologous Blood Collection and Processing Procedures.)

2. Autologous donors should meet any additional donor eligibility criteria as described by the device manufacturer in the device operator's manual and the establishment's SOP.

C. Standard Operating Procedures and Record Keeping

The blood establishment's SOP and records for blood collection should include the collection parameters set forth in the device operator's manual. These parameters should include, but not be limited to, the following:

1. The pre-determined target volume of each unit of red blood cells to be removed from the donor as determined by the device operator's manual, based on the gender, height, weight, hematocrit and type of procedure.

2. The amount of normal saline solution, as recommended by the device manufacturer, to be administered to compensate for the volume of red blood cells lost through donation.

3. The hematocrit of the final red blood cell product as determined by the method described in the device operator's manual.

4. An absolute red blood cell volume of each product produced. (Red Blood Cell product hematocrit X Red Blood Cell product volume).

5. A comparison of the calculated donation volume and the pre-determined target volume as determined by the donor's gender and hematocrit.

Records of personnel training on the procedures for the collection of red blood cells by automated apheresis should be on file at the blood establishment and available for review and copying at the time of FDA inspections.

IV. REGISTRATION AND LICENSING PROCEDURES FOR THE MANUFACTURE OF RED BLOOD CELLS AND PLASMA COLLECTED BY AUTOMATED METHODS

Blood establishments that intend to manufacture these products by automated methods should submit a supplement to their product license and receive approval by FDA for each of the above products prior to interstate distribution of the product [21 CFR 601.12(b)]. Unlicensed registered establishments should update their registration forms to include the manufacture of these products by automated methods. These supplements should meet the requirements set forth in 21 CFR 601.2 and 601.3(b) and should include:

A. Standard Operating Procedures [21 CFR 606.100] related to the collection of red blood cells and plasma by automated apheresis. All blood establishments

performing the two (2) unit Red Blood Cell collection procedure should accurately track multiple units collected from the one donor.

B. Records and Forms [21 CFR 606.160, 606.165 and 606.170], including:

1. Informed Consent Form describing the procedure, donation frequency, and any reasonable risks or discomforts that might occur, should include, but not be limited to:

   a. Complications at the venipuncture site, e.g., hematoma formation or local infection.

   b. Tingling of fingers or lips or tremor due to the anticoagulant.

   c. Nausea, vomiting, light-headedness, fainting, dizziness, pallor, feeling of warmth, chills, tiredness or convulsions related to change in blood volume.

2. In addition to the records required under Parts 600 - 680, blood establishments should also maintain the following records. The records do not need to be submitted to FDA, but should be available for review and copying during FDA inspections.

   a. Records of instrument and disposable equipment failures and reporting of failures to device manufacturers [21 CFR Parts 803 and 820]. The device operator's manual should be followed for corrective action for any adverse or unexpected event, e.g., evidence of product hemolysis.

   b. Records of the observation, standardization and calibration of the automated equipment on a regularly scheduled basis that conforms with 21 CFR 606.60 and the device operator's manual.

C. Labeling. The labels should meet the applicable requirements set forth in 21 CFR 606.121 for Red Blood Cells and Fresh Frozen Plasma and in 21 CFR 640.70 for Source Plasma.